

REMARKS

In response to the Office Action mailed April 2, 2003, Applicant respectfully requests that the Examiner reconsider the rejection of Claims 1-8.

Claims 1 - 3, and 6 - 8 stand rejected under 35 U.S.C. §102(a) as being anticipated by *Kazuhiro* (JP Patent Abstract JP-11332230) (hereinafter "the *Kazuhiro* reference"). Further, Claim 4 stands rejected under 35 U.S.C. §103(a) as being unpatentable over the *Kazuhiro* reference, in view of *Wilcox, et al.* (U.S. Patent No. 4,048,561) (hereinafter "the *Wilcox* reference"). Finally, Claim 5 stands rejected under 35 U.S.C. §103(a), as being unpatentable over the *Kazuhiro* reference, in view of *Foord, et al.* (U.S. Patent No. 4,868,539) (hereinafter "the *Foord* reference"). Applicant respectfully traverses these rejections.

Claim 1, as amended, calls for switched mode circuitry comprising an audio amplifier for driving an audio channel of an AM radio receiver. One particular embodiment of this feature is shown in the switched mode audio amplifier of FIGURE 2 of the present application. Claim 1 is in contrast to the *Kazuhiro* reference, which only discloses a switching power supply which does not directly drive a radio channel.

Additionally, amended Claim 1 clarifies that the circuitry for setting the switching frequency selects from a set of frequency steps. Two particular embodiments, which step the switching frequency, are the multiple-crystal embodiment already presented as dependent Claim 4 and the programmable divider embodiment already presented as dependent Claim 5. Advantageously, this particular feature of the present inventive principles allows for a wide range of frequency adjustments to be made, for example, by multiples of the sampling frequency in data conversion applications, as described on the third paragraph of Page 8 of the present application. Specifically, the principles of the present invention allow for shifts in the switching frequency of greater than two (2) percent. The Examiner should refer to the exemplary frequency tables provided in the present application. In a PWM application, the high frequency clock can therefore be

maintained and the PWM upsampling ratio stepped such that the harmonics of the switching frequency miss the currently tuned AM radio frequency by at least 25 kHz.

The system disclosed in the *Kazuhiro* reference implements switching frequency variation with voltage controlled oscillator 14 of Figures 1 –3. Voltage controlled oscillators are inherently limited in the range of frequency variations which can be obtained from a single device and generally only allow relatively small frequency variations to be made within that range. In particular, voltage controlled oscillators are normally limited in their adjustment range to approximately 100 parts per million (ppm) or less. However, in an AM radio application, the frequencies of the harmonics of the switching signal should be separated from the receive channel frequency by at least 25 kHz. For a fundamental switching frequency of 384 kHz, the second harmonic switching frequency is 768 kHz. A shift of 768 kHz by 25 kHz is approximately four (4) percent, which is larger than the frequency shifting available in voltage controlled oscillators.

The Examiner correctly submits that the *Wilcox* reference discloses the utilization of multiple crystals to drive associated transmit and receive system oscillator circuits and thus tune the system to specific transmit and receive frequencies. However, there is no teaching or suggestion in the *Wilcox* reference to utilize selectable crystals to allow the stepping of the switching frequency in an audio amplifier across a wide range of frequencies to avoid particular receiver interference regions.

The *Foord* reference illustrates the utilization of a phase-locked loop multiplier and a frequency divider for generating a base frequency in a system for sending information as an audio frequency signal across a power distribution network. Consequently, the *Foord* reference does not discuss the problem of interference in radio receivers, and particularly does not suggest the utilization of a frequency divider to provide frequency stepping in an audio amplifier to avoid interference in a radio receiver.

No new matter has been added; the claims have merely been amended to more particularly point out and distinctly claim the subject matter Applicant believes is inventive. Applicant respectfully submits that the Claims as they now stand are patentably distinct over the art cited.

With the addition of one new dependent claims and the deletion of one old dependent claims, no additional claim filing fees are due. However, Applicant requests a One Month Extension of Time to File Response as attached (SB/22) along with extension request fees in the amount of \$110.00 included with the attached SB/17 Fee Transmittal sheet. Also, the Commissioner is hereby authorized to charge any fees or credit any overpayment to Deposit Account Number 23-2426 of WINSTEAD SECHREST & MINICK P.C.

If the Examiner has any questions or comments concerning this paper or the present application in general, the Examiner is invited to call the undersigned at (214) 745-5374.

Respectfully submitted,

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